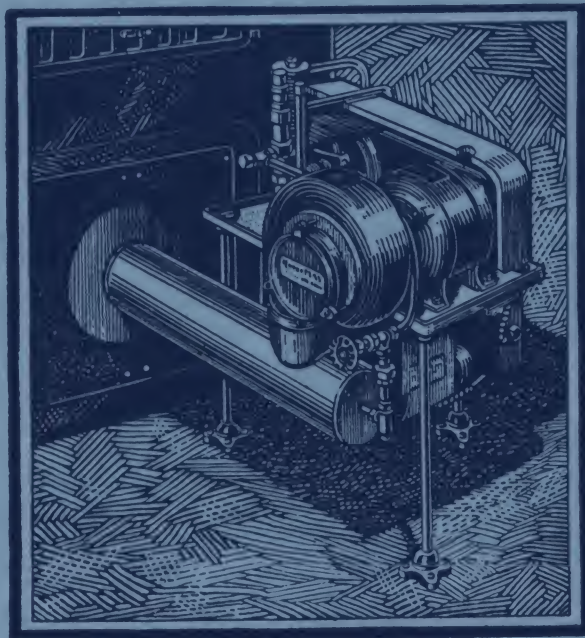


QUIET MAY

AUTOMATIC
OIL BURNER



MAY OIL BURNER CORPORATION
BALTIMORE, MD.

GENERAL INDEX

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MAY OIL BURNER CORPORATION

MAY OIL BURNER CORPORATION

Manufacturers of Quiet May Automatic Oil Burners

FACTORIES AND GENERAL OFFICES
BALTIMORE, MD.

May Oil Burner of Canada, Ltd.

TORONTO, CANADA

NEW YORK
331 Madison Avenue

LONDON (ENG.)
15 Great James Street

CHICAGO
35 East Wacker Drive

PARIS
15 Rue de la Paix

PHILADELPHIA
717 North Broad Street

The Company, Its Products, and Distribution

Company and Products

The MAY OIL BURNER CORPORATION was organized in the year 1924 and the present management of the corporation became active in the conduct of its business in the Fall of the same year.

The company manufactures oil burners exclusively. The company was organized for the purpose of manufacturing and distributing the Quiet MAY Automatic Oil Burner, which operates on the principle of mechanical atomization. Experience since then has confirmed the belief that this type of oil burner is the most practical, economical and efficient type and the basic principles of the construction of the Quiet MAY have not been altered since the company was organized. From the very start, the company has been managed by officers whose capital is invested in it and all of the activities are under their close personal supervision.

The Quiet MAY is manufactured in but one type, but in five sizes which will take care of the heating requirements of buildings requiring from 1½ to 45 gallons of oil per hour. This range is suitable for a wide variety of buildings, from a six-room house to the large apartment house, institution or commercial building. All

sizes operate on identically the same principle. This minimizes the requirement of spare parts and if through any emergency replacement of parts is required, this service matter is greatly simplified.

Distribution

The distribution of the Quiet MAY has gradually and consistently expanded until today the company maintains direct wholesale branch offices in New York City, Chicago, Philadelphia, Paris, and London, and has special representation in South America. Direct factory branch retail outlets are maintained in Baltimore, Philadelphia, Chicago and Milwaukee. Reliable dealers handle the Quiet MAY in all parts of the United States and their methods of selling and installing them are supervised by factory representatives, thoroughly trained in the merchandising, selling and servicing of automatic oil burners.

The company maintains an Engineering School at its factory and all dealers are required to send to this school for a thorough course in training, mechanics whose duty it is to install and maintain the Quiet MAY after it is sold.

In Canada, The May Oil Burner of Canada, Ltd., with headquarters in Toronto, takes care of the rapidly increasing Canadian business.

The company maintains a field engineering staff whose duty it is to instruct dealers in the correct installation of the Quiet MAY and supervise such installations. The company continues to maintain its interest in the Quiet MAY after it has been installed.

The greatest care is exercised in manufacturing, testing and assembling the Quiet MAY Automatic Oil Burner and nothing is left to chance or to the word of suppliers of material outside of the Quiet MAY organization.

In the following pages are described some of the parts and the manufacturing operations which are carried out with the most meticulous care.



A View of the General Offices at Baltimore, Md.

Adaptability and Efficiency

The Quiet MAY Automatic Oil Burner is designed and built in five sizes with a range of capacities from 1½ gallons to 45 gallons of oil per hour.

Each size is designed to operate with a maximum of efficiency at any rate within its range so that it is possible to choose from the five sizes a burner that is exactly fitted to meet any specific requirement.

In the chart below is shown the minimum and maximum designed ratings of the five sizes of the Quiet MAY. Each model may be operated efficiently at any rate within the range given for that model.

All models are designed to be operated fully automatically and with electric ignition at any rate up to the maximum capacity of the largest size. They may be operated manually if desired.

Operating Range

Gallons per hour	A-c. Motor Hp.	Motor R.p.m.	Pump R.p.m.	Fan R.p.m.
Type A—from 1½ to 2 gallons	⅜	1725	900	1725
Type M—from 2 to 3 gallons	⅜	1725	750	1725
Type L—from 3 to 7½ gallons	¼	1725	900	1725
Type C—from 7½ to 25 gallons	½	1725	1100	1725
Type R—from 25 to 45 gallons	1½	1725	1100	1725

Burner Ratings in Equivalent Radiation Representing Total Connected Load at Boiler

	Type "A"	Type "M"	Type "L"	Type "C"	Type "R"
Steam capacity, sq. ft.	600	900	2400	8400	14000
Hot water, sq. ft.	1000	1400	4000	14000	21000

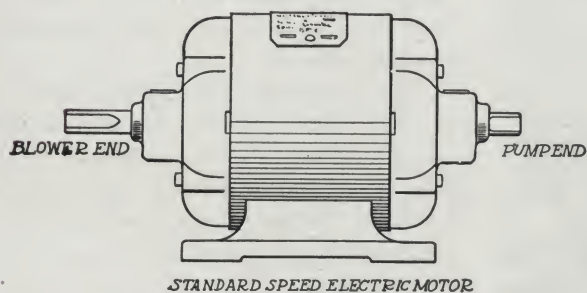
In arriving at the maximum amount of connected load at the boiler which we guarantee each size to operate at, we have adopted the following method of calculation: (In order to avoid complicated figures we use round numbers.)

Using 140,000 as the B.t.u. content of 1 gallon of No. 3 oil and 2 gallons per hour as the maximum rating of our Type "A" burner, we have 280,000 B.t.u. per hour. Assuming an average efficiency for intermittently and automatically operated installations in a residence to be 70%, we have 196,000 B.t.u. available. Carrying

further the thought of the intermittent operation with the frequent cold start we allow 25% additional to take care of this situation, which gives us 147,000 B.t.u. (25% for cold start—see "Ideal" Fitter.)

Two hundred and forty B.t.u. per hour are required for 1 sq. ft. of steam radiation and dividing 240 into 147,000 gives us the equivalent of 600 sq. ft. of load at boiler. Load at the boiler is the sum total of standing room radiation plus mains and risers or any other form of connected load such as indirect connected domestic hot water heater.

Motors



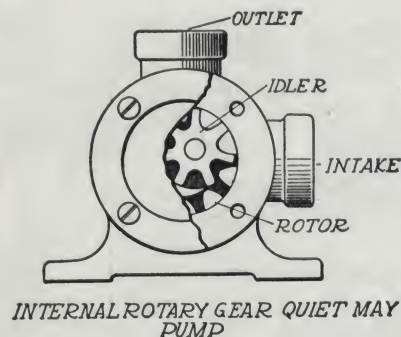
A-C. Motor, G-E and Century—The motor for the Type "A" burner is manufactured to our specifications by General Electric Co. and for Types "M," "L," "C," and "R" by Century Electric Co. All motors meet the requirements of the N.E.L.A. for fractional horsepower motors for intermittent domestic use.

Burners for Use with D-C.—To retain the important feature of electric ignition where only direct current is available, we have had designed and built for us an inverted rotary converter the functions of which

are dual in that it supplies power to operate the pump and fan and it develops alternating current for the ignition transformer. Types "L," "C" and "R" are built for use with direct current.

Where direct current only is available Type "L" will operate efficiently in the capacity ranges of Types "A" and "M."

Pumps



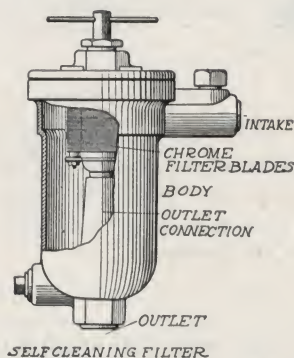
The pump is of the internal rotary gear type. This pump is built to our rigid specifications by the Viking

Pump Co. It is self-lubricating and one pump serves the double purpose of taking oil from the storage tank and delivering it to the atomizer under sufficient pressure to atomize it finely enough to insure perfect combustion.

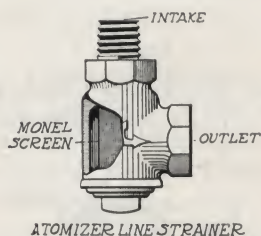
Each individual pump is carefully and thoroughly tested before it is assembled in a Quiet MAY Automatic Oil Burner. When the bottom of the fuel tank is 12 ft. below the pump, a vacuum pull of 10 in. is required to raise the oil from the tank, and the operating pressure in the atomizer is between 100 and 150 pounds per sq. in. In the testing of these pumps, however, each pump must create a vacuum of 15 in. while developing a pressure of 100 lb. at the atomizer and the maximum pressure test of the pump is never under 250 lb. per sq. in. The exceptional efficiency of this pump will permit the placing of the oil tanks as much as 100 ft. from the oil burner and 12 ft. below.

Strainers

There are two oil strainers on a Quiet MAY, the most important one being on the suction or pump line.



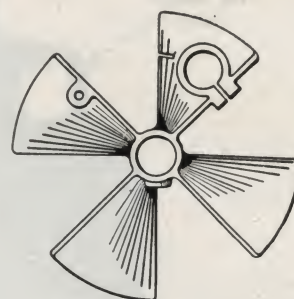
This is actually a filter and is of the self-cleaning type. Ordinarily in this case of filter, brass is used in the self-cleaning mechanism, but the Quiet MAY exclusively uses chrome nickel. While the cost of this material is twice as great as of the commonly used brass, the durability of chrome nickel justifies the additional cost. The body casting of the main filter is die cast and of our own exclusive design.



The secondary strainer is in the atomizer line and has very little to do because of the efficiency of the primary filter. It will, however, catch any foreign material that may accidentally enter the system while it is disassembled. The filtering unit is of double wrapped monel metal wire cloth, 100-mesh. With this efficient filtering system the clogging of the lines of the atomizer is practically impossible.

Turbulator

The turbulator is of cast bronze and is stationary. It is situated in the windpipe near the outlet. The tur-

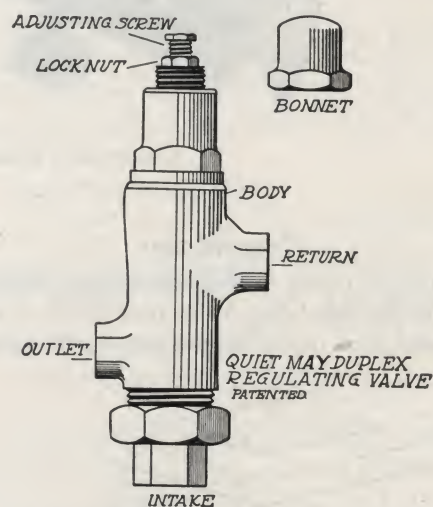


AIR TURBULATOR

bulator has four vanes which are constructed at an angle to create that degree of turbulence which will give the most efficient mixture of air with the oil mist. This feature is a very important one, it accomplishing good combustion.

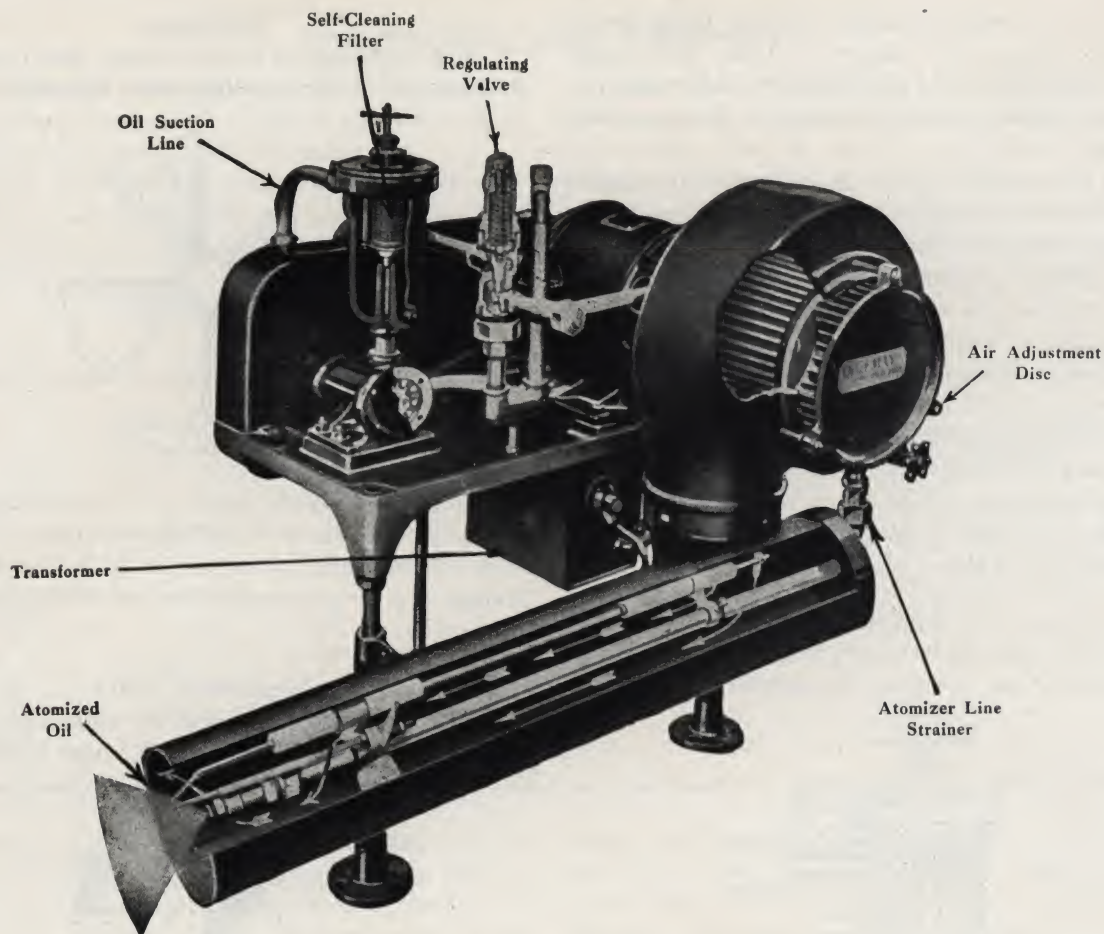
Regulating Valve

The regulating valve is of the spring loaded piston-needle type. It is our own special design patented by us, and is built for us (according to our own rigid speci-



fications) by the Lunkenheimer Co., a large manufacturer of high quality brass specialties.

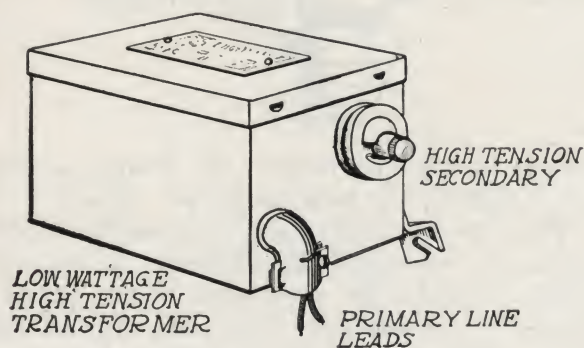
The regulating valve has a dual purpose—first, it regulates the amount of oil returned to the tank, and secondly, regulates the pressure at which the oil is delivered to the atomizer. The pump delivers from 200% to 500% excess of oil and it is the return of this excess to the tank that the regulating valve controls. A secondary function of the regulating valve is to check the flow of oil to the atomizer until sufficient pressure has been built up for the operation of the pump to produce efficient atomization. It also shuts off the flow of oil from the atomizer the moment the pump stops, thus preventing the dripping of oil when the burner has ceased to operate. The regulating valve is properly adjusted at the factory and there is no occasion for the user to make any adjustments on it whatever.



Construction Details—The Quiet May Automatic Oil Burner

Transformer

The transformers used on the Quiet MAY are conceded to be the most efficient in use, which is the result of five years' work on the part of our electrical engineers,



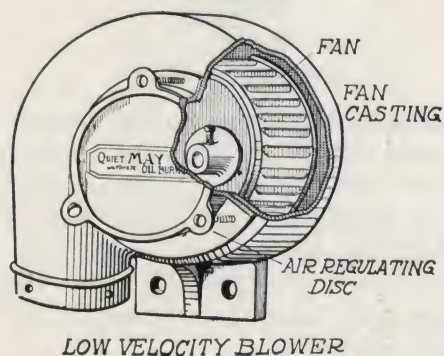
in conjunction with the engineers of the General Electric Co., Dongan Electric Co. and other transformer manufacturers. The specifications used in the Quiet MAY Production Laboratories for the test and acceptance of electrical transformers for ignition purpose have been accepted by the industry as standard. The general type of construction is of the step-up type, with no moving parts, no vibrators, no contact points; nothing but a series of coils, which are very carefully insulated with the very finest insulating materials placed in a metal

case, and then filled with high quality of high temperature compound for the elimination of damage due to vibration and infiltration of moisture.

The primary windings are for 110 or 220 volts; the secondary windings develop 10,000 volts and approximately 23 milliamperes. These transformers are tested by us for voltages as low as 80 volts and up to 135% of their primary ratings. While the general operation of the transformer is for intermittent duty, yet they are built, tested and accepted by us under continuous duty specifications.

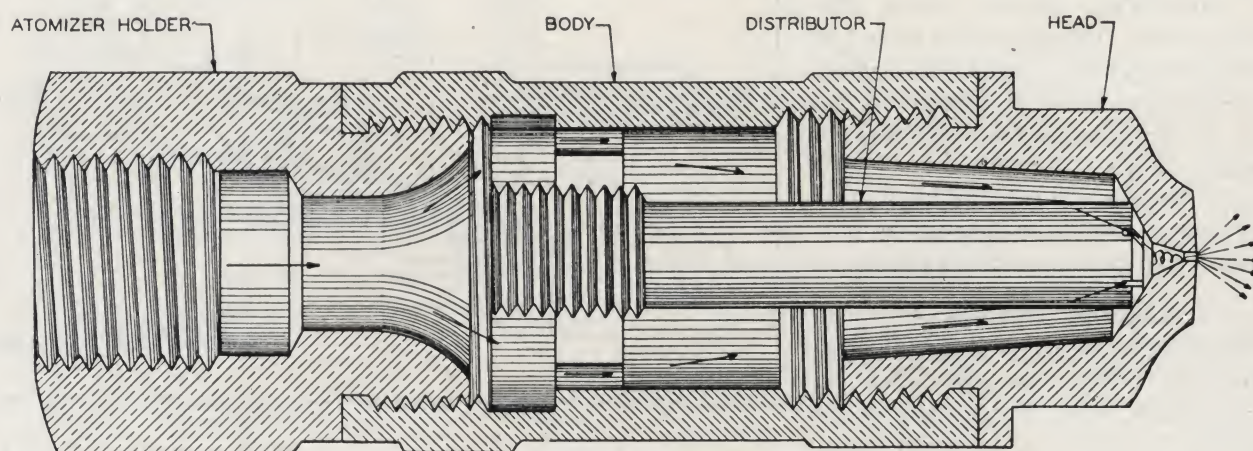
Fan

The fan is the Sirocco type, made of steel and accurately balanced. It is amply large to have a reserve



capacity and operates at a low velocity, which eliminates noise. The Quiet MAY Automatic Oil Burner uses no primary air to assist in the atomization of the oil since sufficient atomization is obtained by means of

the correct pressure in a correctly designed atomizing nozzle. The fan simply furnishes a metered quantity of secondary air that will insure perfect combustion.



Construction Details of Brass Atomizer Nozzle

Pressure Atomization

The success of the efficient atomization of oil in the Quiet MAY is due to the design and perfect workmanship in the construction of the bronze atomizer, or nozzle.

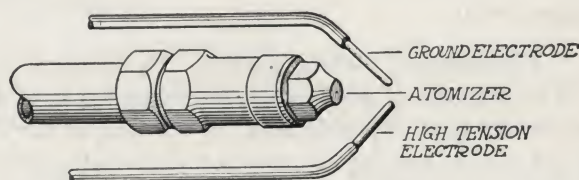
These nozzles are built for us under our specifications by an organization of precision machinery manufacturers, who have been building nozzles for the United States Government, large merchant-marine interests, and other organizations who have demanded carefully executed machine parts for over twenty-five years.

The nozzle can be removed very quickly, without the use of any special tools, examined, and cleaned, if necessary, without disturbing any other part of the burner, and without the necessity of opening the fire door on the boiler, since no part of the Quiet MAY extends into the combustion chamber or operates within the combustion chamber of the furnace or boiler.

Electric Ignition

The subject of ignition cannot be discussed very well without bringing in the subject of efficient atomization. The knowledge of the fact that electric ignition is by far the most desirable form of ignition for an automatic oil burner, has long been accepted by the industry. In our opinion, the reason that all oil burners are not equipped with electric ignition only, is because of the fact that the atomization of the oil is not fine enough or that the volume of the atomized oil cannot be controlled to a degree which makes it possible for the oil to become ignited, from the electric arc produced by the low wattage transformers such as used on the Quiet MAY. It has always been a simple matter to ignite oil from a

long gas flame—it has also been a simple matter for some burners to ignite this gas flame from an electric spark, and then have the oil ignited from the gas flame; it has, however, been quite a difficult task for most oil



ELECTRIC IGNITION ASSEMBLY

burners to atomize or vaporize, or in some other form, bring their oil into such a fine mist, or a division, so that an electric arc, such as is produced by the low wattage transformer used on the Quiet MAY, could ignite their oil.

The Quiet MAY has always been strictly an electric ignition automatic oil burner from the original days when the use of a magneto was employed, up until the present time, when we are using through the co-operative efforts of our electrical engineers and those of the General Electric Co., a transformer which has no moving parts, no vibrator points, nothing mechanical about it at all, simply a series of windings. In other words, the simple analysis of an oil burner as to the efficiency of its atomization is to know whether or not it can use straight electric ignition of the Quiet MAY type.

We do not believe that it is necessary for us, in this catalogue, to go into the danger of a gas pilot in automatic oil burners, whether it be forced draft or natural draft design.

Controls

Thermostat

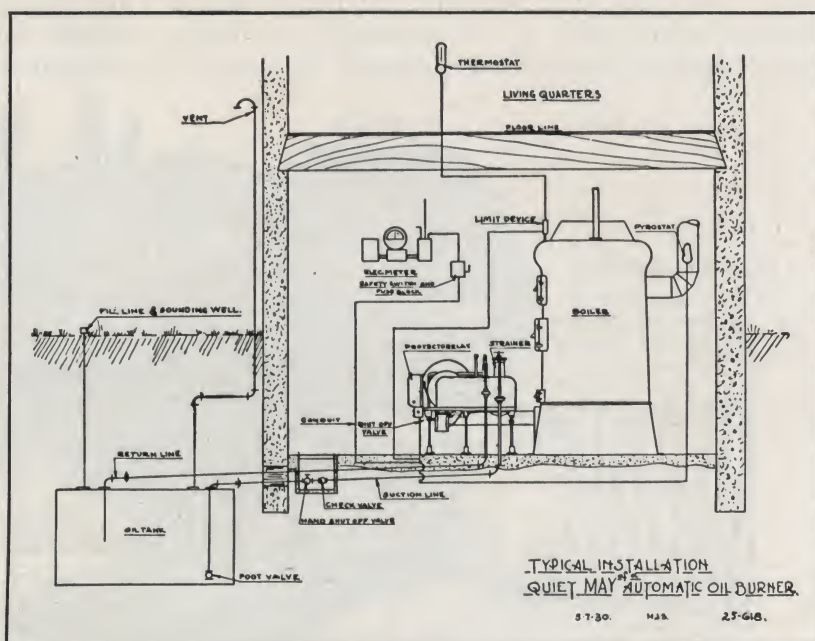
The thermostat is of conventional room type, manufactured by the Minneapolis-Honeywell Company. It can be furnished either plain or equipped with an eight-day clock by means of which the temperature can be controlled and any desired temperature obtained during any period of time. The thermostat should be located on the wall of a room that requires the temperature desired throughout the house. It should be located where it is not exposed to drafts. The Quiet MAY Automatic Oil Burner will stop and start under the control of this thermostat on the fluctuation of two degrees of temperature.

Limiting Devices

The limiting device is designed to discontinue the burner operation when the steam pressure, water temperature or air temperature reaches a predetermined limit. If it so happens that the temperature of the room in which the thermostat is located cannot be raised to the desired degree because of open doors, windows and other causes, the burner will continue to operate. To prevent excessive steam pressure or excessive water or steam temperature, this boiler limiting device is installed and will automatically stop the burner before these excesses occur.

Combustion Safety Switch (Pyrostat)

The pyrostat or combustion safety switch is of the open contact type, requiring only the breaking of the circuit and not the making to cause it to function properly. The main function of the pyrostat is to permit the burner to continue to operate only so long as heat is being normally maintained in the smoke pipe from combustion. Should there be a cessation of flame due to water in the oil tank, lack of oil or lack of electric current, the combustion safety switch control will automatically break the circuit which operates the burner, and the burner will stop. This precludes any possibility



of the burner pumping oil into the boiler or furnace unless combustion is taking place normally.

Control Panel (Protectorelay)

The control panel or protectorelay is the instrument that synchronizes the operation of several control units and causes them to operate as a well organized system of control instruments. Specifically, several of its particular functions are as follows:

- (1) It will not permit the operation of the burner if the voltage drops below 90 volts.
- (2) It definitely times the duration of the ignition spark.
- (3) It permits an immediate re-start of the burner system on resumption of power after a shutdown due to interruption of the electric current.
- (4) It will not permit a re-start after shutdown, except after the elapse of a predetermined time, which allows all gases to pass from the boiler and out through the chimney.

Tanks

The choice of tank sizes is dependent on the amount of heat which the Quiet MAY will be called on to provide. An average home using a Type "A" or a Type "M" Quiet MAY when an outside tank is required should be provided with a storage capacity of 500 gallons. The type "L" should be installed with a storage capacity of 1000 to 1500 gallons. In this way it is possible to anticipate close to the season's full re-

quirements and reduces attention to the oil storage.

Types "C" and "R," designed primarily for commercial heating where large loads are involved, should be installed with tank of such a size as to permit delivery of a minimum of 1000 gallons of oil when the supply has reached the ten-day requirements. Through the purchase of oil in 1000-gallon lots, it is often possible to effect an economy in the delivery price of the oil.

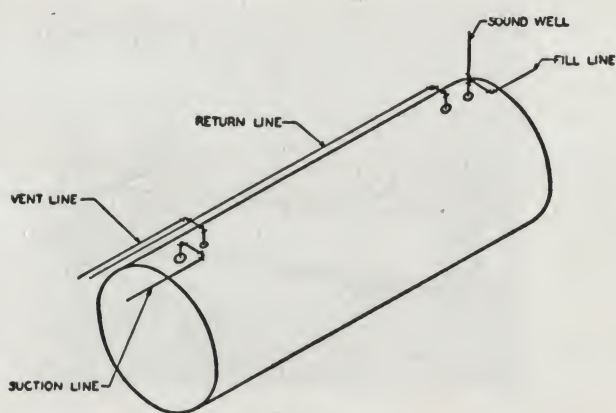


Figure "A"

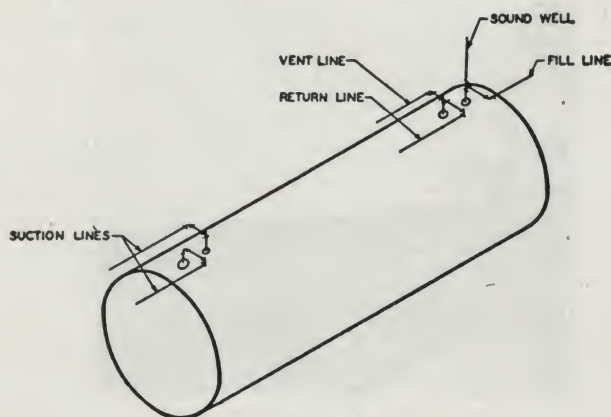


Figure "B"

Tank Dimensions

Below is shown the over-all dimensions of various sizes of storage tanks:

Capacity, gallons	Dimensions, In. Ft. In.	Capacity, gallons	Dimensions, In. Ft. In.
275	30 x 7 6	2000	64 x 10 0
500	48 x 5 9	2500	64 x 15 0
1000	48 x 10 8	3000	64 x 17 10
1000	64 x 6 0	4000	64 x 23 9
1500	64 x 9 0		

Tank Openings

The storage tanks are generally available with four openings. These should be arranged in the manner shown in Figs. "A" or "B." The latter for two burners, since each must have its individual suction line. In cases where it is impossible to obtain four openings in the tank, three may be used, and the method of running the pipe in this case is shown in Fig. "B" for the return and vent lines.

Combustion Chamber

Flame Shape

With the Quiet MAY Automatic Oil Burner it is possible to secure a flame adaptable to any type of boiler. Atomizers are provided to produce a spray of such characteristics as to produce the best results either in small round boilers or long narrow combustion chambers. The pictures appearing below are from actual photo-

graphs without retouching. It can be seen that it was possible to adjust the flame to both the exact furnace conditions and the load the boiler is carrying.

Atomizers are inexpensive, completely interchangeable, and each Quiet MAY dealer is provided with an assortment to meet all requirements.

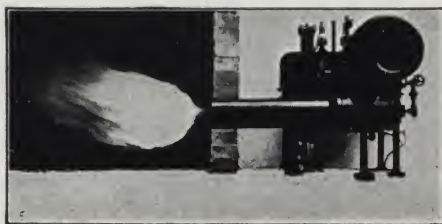
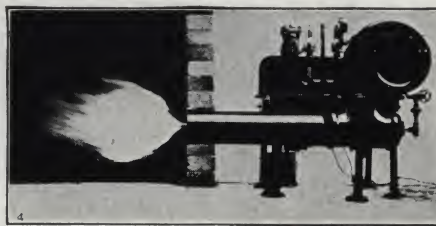
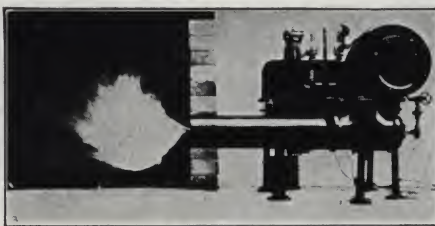




Fig. 1



Fig. 2



Fig. 3

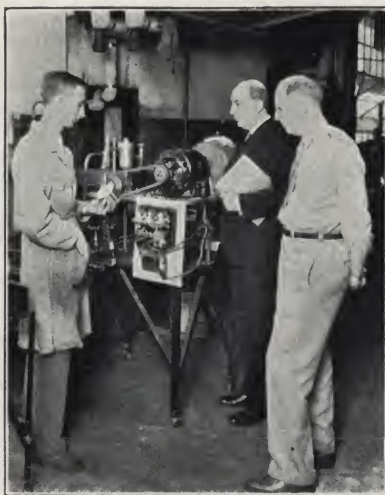


Fig. 4



Fig. 5



Fig. 6



Fig. 7

Factory Tests

Above we picture a few of the many tests through which each Quiet MAY must successfully pass before it may be declared ready to be shipped into "the field."

Fig. 1 shows a transformer "break down" test in which the transformers shown are being tested under most abnormal conditions.

Fig. 2 shows valves on test under extremely high pressure.

Figs. 3 and 5 show precision tests through which certain parts must pass before they are declared fit for use, and in Fig. 4 is shown a Quiet MAY being run and timed in our Final Test Department.

Fig. 6 shows a view of the paint department where Quiet MAYs are given their final coating of color. Fig. 7 shows an atomizer nozzle being tested for its spraying qualities.

Oil Burner Section of a Set of General Specifications

BURNER	<p>The burner shall be of the mechanical atomizing type designed for the service and duty, to be Type "L" Quiet MAY as manufactured by the MAY OIL BURNER CORPORATION, and guaranteed to be of sufficient capacity to develop the full rated capacity of the boiler in which it is installed.</p> <p>The oil burner shall be of the mechanical oil pressure atomizing type, using only electric ignition, fully approved by Underwriters' Laboratories, Inc. It shall be a Quiet MAY, or of equal quality, and of the size and capacity to amply take care of the designed load of the heating plant. Its operation and control shall be fully automatic, and the control system shall be of the Quiet MAY type, that is: Plain or clock thermostat, timed ignition and delayed return, main control panel; boiler or furnace limiting device and a Combustion Control. The operation and synchronization of the control system shall be in a circuit that only permits the burner to function so long as the secondary controls are calling for heat and the combustion control is in the hot position due to proper combustion.</p> <p>The electric ignition shall be so designed as to permit of either continuous or intermittent operation. The operation shall not produce any objectionable radio interference.</p>
FUEL	<p>The fuel shall be what is commonly known as fuel oil, having a Baumé gravity between 28 and 32°, A.P.I. No. 3.</p>
TANK	<p>The oil storage tank is to have a capacity of One Thousand (1000) gallons, shall be approximately 48 in. in diameter and 12 ft. in length, with $\frac{3}{8}$-in. shell and shall be built in accordance with the regulations of the Underwriters' Laboratories, Inc., and shall bear their label.</p>
EXCAVATING	<p>All excavating, trenching, and backfilling for tank and piping will be done by the oil burner contractor, but it is understood that if rock, water, or quicksand are encountered the owner will pay additionally for overcoming these obstacles.</p>
PIPING	<p>Pipe shall be of wrought iron or steel of standard weight and shall be of such size as recommended by MAY OIL BURNER CORPORATION in their regularly published "Instructions for the Installation and Service of the Quiet MAY Automatic Oil Burner."</p> <p>Fittings shall be of the beaded pattern galvanized malleable iron. Unions are to be of galvanized iron with brass to brass, or brass to iron seats. Suction line to terminals inside tank within 3 in. of bottom with a double poppet Quiet MAY foot valve.</p>
OIL GAUGE	<p>There shall be furnished and installed one Liquidometer Junior oil gauge which shall be placed in the basement to indicate the level of the oil in the tank.</p>
BRICKWORK	<p>The combustion chamber of the boiler is to be lined in accordance with the "Instructions for the Installation and Service of the Quiet MAY Automatic Oil Burner."</p>
ELECTRICAL WORK	<p>The electrical work is to be done in an approved manner and an Underwriters' certificate covering the work is to be furnished. The oil burner contractor is to be furnished with an electrical outlet in the boiler room for the purpose of supplying current to the burner, and the balance of the electrical work in connection with the burner installation is to be furnished by him.</p>
PERMITS	<p>The oil burner contractor will apply for and obtain all necessary permits and certificates.</p>
GUARANTEE	<p>The entire installation is to be guaranteed to the owner to be free from any imperfections in materials or workmanship for a period of one year from the date of the installation.</p>
SERVICE	<p>The installation is to be serviced free of charge to the owner for a period of one year from the date of the installation. The oil burner contractor is to maintain a service department operating 24 hours a day so that service is obtainable day or night.</p>

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“Built to Last a Lifetime”